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ABSTRACT

A quarter of a century after the inception of the microteaching concept and in view of the new emphasis given to teaching learning laboratories, this paper discusses the development of the microteaching concept and its present state of art. Special attention is given to the theoretical conceptualization of microteaching and the teaching learning laboratory. Based on the experience gained in the development and dissemination of the microteaching concept in teacher education programs, the paper proposes a rationale and directions for future development of teaching learning laboratories in training, research, and development in teaching and teacher education. Special attention is given to the goals, objectives and working methods in the laboratory, the supervisory process, the use of multiple sources of feedback and, in particular, video feedback, as a process of video self-confrontation. (Author/JD)

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From Microteaching To Teaching Learning Laboratories-T.L.L.

An International Perspective

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Paper presented in a symposium on: The Teaching Learning Laboratory – A Vehicle for Research, Development and Training in Teacher Education – An International Perspective, at the Annual Meeting of the American Educational Research Association, New Orleans, April 1988.

Abstract

There is a growing awareness of the importance of teaching learning laboratories as a major component in teacher education programs and as a setting for research and development in teaching and teacher education (Berliner, 1985; Ball, 1987; Barnes, 1987; Kennedy, 1988). But the concept of a laboratory as a setting for research and training is not new. It existed in science and technology for many years. In education, the concept of the "laboratory school" existed in Europe as early as the seventeenth century (Turney, 1987). Dewey (1904, 1916) introduced the concept of the "laboratory school" as a setting for research and experimentation in education. Kurt Lewin and his associates (1948) have adopted the laboratory concept in the behavioral sciences and developed the National Training Laboratories.

Gage in his chapter "Paradigms for Research on Teaching" in the 1963 Handbook for Research on Teaching, and later on in his paper "An Analytical Approach to Research in Instructional Methods" promoted the concept of the laboratories (1968). Many view Gage's 1963 paper as the beginning of the Microteaching movement which developed at Stanford at that time (Allen and Ryan, 1969). A quarter of a century after the inception of the microteaching concept and in view of the new emphasis given to teaching learning laboratories, this paper discusses the development of the microteaching concept and its present state of art. Special attention is given to the theoretical conceptualization of microteaching and the teaching learning laboratory. Based on the experience gained in the development and dissemination of the microteaching concept in teacher education programs, the paper proposes a rationale and directions for future development of teaching learning laboratories in training, research, and development in teaching and teacher education. Special attention is given to the goals, objectives and working methods in the laboratory, the supervisory process, the use of multiple sources of feedback and, in particular, video feedback, as a process of video self confrontation.

From Microteaching to Teaching Learning Laboratories-T.L.L.
An International Perspective

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Walberg (1986) in a synthesis of research on teaching cites a study (Butcher, 1981) which "showed that microteaching, now largely but unjustifiably abandoned in teacher education programs, has substantial effects on teaching skills of undergraduates in teacher training." Walberg goes on stating that "many fads have come and gone in education during the past few decades; but some of them, like microteaching, probably had large constructive effects. Educational research will accumulate more knowledge and help improve education more than it has if the results of old and new programs such as microteaching are synthesized" (p. 2220). The purpose of this paper is to discuss the state of art of microteaching, a quarter of a century after its inception at Stanford and its evolution into the concept of the teaching-learning laboratory,[1] in teacher education and as a site for research and development in teaching and learning. Special emphasis will be given to the adoption and adaptation process of microteaching in different countries and the development of models and paradigms which differed from the original Stanford model.

A Definition and Description of Microteaching

Microteaching is a laboratory training procedure aimed at simplifying the complexities of regular teaching-learning processes. The trainee is engaged in a scaled down and focused situation-scaled down in terms of class size and lesson length and focused on teaching tasks such as practice and mastery of specific skills such as lecturing, questioning, or leading a discussion; mastering specific teaching strategies; flexibility in instructional decision making; alternative uses of curricula, instructional materials and classroom management.

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[1]For the purpose of abbreviation the acronym T.L.L. will be used throughout this paper when referring to a Teaching Learning Laboratory.

The short lesson is recorded on an audio- or video-tape recorder and the trainee can see the replica immediately after the lesson. When hardware is not available, a supervisor can record in writing the basic verbal and nonverbal interaction as feedback for the teacher. Pupils are asked to fill in rating questionnaires evaluating specific aspects of the lesson and at times can also provide oral feedback. The trainee's own analysis of the lesson based on the authentic feedback from the various sources helps in restructuring the lesson, which is taught to a new group of pupils either immediately or a few days later.

The restructuring cycle continues until mastery is achieved. The trainee can also choose to view or listen to, either before the first teaching experience or thereafter, a recording of a model teacher practicing a particular teaching-learning skill. The above description pertains mainly to the original microteaching model developed at Stanford around 1960.

It is important to note that during the initial stages of its inception and development, microteaching, like many other educational innovations, was not based on solid theoretical conceptualization and research evidence. Allen, one of the main developers of microteaching described it as an "idea" and in their introduction to the first book published on microteaching, Allen and Ryan (1969) state that:

> The questions that are raised by microteaching, at least at this point in its evolution, far exceed the answers it has been able to supply. Microteaching currently has the same promise and the same danger, that newly devised research and training techniques have always had: the promise of opening entirely new avenues, perspectives, and alternatives to human exploration; the danger of locking in too early on a first alternative which arose purely out of chance and convenience. (p. III)

As will be evident from the discussion, the above warning was almost a self-fulfilling prophecy, and it had far reaching implications in the development of the concept in teacher education, in research on teaching, and in particular in the lack of a research-based theoretical conceptualization of microteaching.

Historical Background

To understand the lack of a theoretical conceptualization of microteaching on the one hand, and the rationale for some of its components on the other hand, one has to examine the

background from which it originated. Allen states that: "Microteaching was born out of the frustration of liberal arts graduates who felt that there was nothing they could possibly learn from teacher education" (Allen & Ryan 1969; Allen, 1980). The Stanford group which developed microteaching responded to a wider feeling of frustration and dissatisfaction the world over, by the public at large, educators, and even teacher educators, with the traditional models of teacher education (Joyce, 1975). In the United States, during the 1950s and 1960s, schools and teachers came under attack for failing to help children master reading, writing, and arithmetic and for failing to teach adequately science and other subjects (Bestor, 1955; Flesch, 1955; Conant, 1963; Koerner, 1963). There was an increasing demand that teachers be held accountable for the achievement of their pupils. Teachers, in turn, blamed teacher education, claiming that their preservice and inservice training had not provided them with the skills necessary for ensuring students' achievement at the level being called for (Gage & Winne, 1975.)

The traditional models were criticized for being heavily slanted towards verbal and cognitive input, which was described at times as superficial and much to say about nothing. The theoretical studies were not integrated with the practical experiences and even the experiential part of teacher training, practice teaching, was criticized as ineffective. Concurrently, educational researchers admitted that half a century's research on teaching and learning did not have much impact on classroom interaction. Gage (1963, 1968, 1978) claimed that the holistic, macro approach to research on teaching had failed, and that educators should adopt the methods used by scientists who tried to understand complex phenomena by breaking them into micro elements.

But the 1960s and early 1970s were not only times of criticism. Through extensive governmental and foundation resources, American teacher educators were encouraged to innovate and were ready to adopt any innovation based even on intuitive professional judgment, with the hope of substantiating it later on. Microteaching was one of these innovations that was practiced first; the process of its theoretical conceptualization and research to substantiate the many claims made in its behalf started only at the later stage. Compared with many other innovative ideas in teacher education, the microteaching "idea" was adopted very quickly by teacher educators,

researchers, developers, and practitioners in the U.S. This phenomenon was reflected in an abundance of research projects, and the development of resource materials for microteaching.

But the feeling of frustration and the dissatisfaction with teacher education prevailed worldwide. Teacher educators, governmental agencies and foundations were ready to adapt any idea or model that seemed to have a potential to improve the situation. As a result, large grants were given to establish microteaching laboratories equipped with the most sophisticated television equipment. In some centers, television studios and professional technicians were an important component of the microteaching lab. Special research teams in various—centers such as Tubingen, West Germany; England; Scotland; France; Sweden; Israel; and Australia; were heavily involved in research and development in microteaching. New books, articles, research reports and resource materials were published in many countries.

In 1970, when UNESCO started to publish its first journal, *Prospects in Education*, it commissioned a special paper on microteaching that was translated into all of UNESCO's official languages and later into other languages, to disseminate the idea as much as possible (Perlberg, 1969, 1970a, 1970b, 1970c; 1972a, 1972b, 1972c, 1972d, 1972e; 1974). In several UNESCO conferences on teacher education, microteaching was described a major contribution to teacher education.

From the mid-seventies, there was a sharp decline in research and development on microteaching. It was no more an innovation. It was incorporated in many teacher education programs, and most educational researchers, who were involved in microteaching in its first decade, shifted their focus to the next reform movement in teacher education, which was Performance Based Teacher Education (P.B.T.E.) or Competency Based Teacher Education (C.B.T.E). The new reform movement was another response to the public's dissatisfaction with the state of education and teacher education. This dissatisfaction started in the late fifties and early sixties and triggered the microteaching movement. But this time the public demanded accountability in education and teacher education. Researchers and developers were given almost unlimited resources to develop not only one component in teacher education programs such as

microteaching but new models and new paradigms, which were in a way an extension of many of the basic elements that guided the development of microteaching (Joyce, 1975; Perlberg & Kramer, 1977). Compared with microteaching, the CBTE-PBTE reform movement did not have a great impact on teacher education outside the U.S.

Hargie and Maidment (1979) who surveyed the use of microteaching in the U.K. and other countries conclude their discussion on the future of microteaching stating:

> We believe that the "dizzy decade" of microteaching development in the United Kingdom, from 1966–1975 is being succeeded by a 'quiet quinquennium,' during which the proportion of training establishments using the method is still rising, if at a slower rate.

The Debate over Theoretical Conceptualization

The original Stanford group which developed microteaching held heterogeneous in ideologies and beliefs about education and psychology, and the debate over the theoretical conceptualization has gone on since the inception of the idea. Ivey and Authier (1978) reflected on this issue stating that: "In the early phase of experimentalism and research, conceptual frameworks and theoretical constructs were deliberately omitted in the search for a method which consistently showed results—a system that worked as needed rather than one which was theoretically sophisticated." This eclectic approach led to the development of the "technical skills" model, which was described also in retrospective as "easy pragmatism" (MacLeod, 1987). Allen, was the main spokesman of this model (Allen & Ryan, 1969).

The developers of the "technical skills" model were influenced greatly by "systems approaches" that developed in training research during the second world war and evolved later into "training technology" or "educational technology" in its broad definition (Lumsdaine, 1963). They applied concepts such as task analysis, behavioral objectives, mastery learning, and observation systems. Concepts from training and behavioral psychology such as reinforcement and modeling were also applied. Educational technology in the sense of audiovisual aids was also applied to show models and protocol materials of teaching skills. Recording technologies to

document teaching-learning interactions for research and in particular to provide feedback to trainees were emphasized.

Since the technological development of relatively inexpensive portable video recorders coincided with the development of the concept of microteaching, it was incorporated as an important component in every microteaching laboratory. Researchers, developers, as well as practitioners, were fascinated by this new technology that enabled them to receive instantaneous, reliable, and authentic feedback of any interactions, including those in regular classrooms. Moreover, the video recordings could be replayed for reanalysis, study, and demonstration.

It is interesting to note that student teachers as well as experienced teachers who took part in microteaching had ambivalent feelings about being video recorded. On one hand, they were apprehensive about seeing themselves as others see them and at times were even shocked by this experience. On the other hand, they were fascinated by the opportunity of "being on television," which was until then the privilege of a very small and selected group in society.

The fascination with the potential of video for both research and training was so great, to a degree that people could not conceive practicing microteaching without video recordings. It is interesting to note that teacher educators in developing countries, even in the most remote and underdeveloped areas, which didn't have electricity, insisted on having video recorders. UNESCO, which had already adopted the basic concept of microteaching and strongly advocated its use in developing countries, commissioned a special report advocating that microteaching could be used without expensive video recordings. Moreover, the report advocates that the use of systematic observation instruments, and when possible with tape recorders, could be as effective if not more than video recordings (Perlberg, 1976). Even today, the misconception that video is a "must" in every microteaching program prevails. For example, the *American Heritage Dictionary* (1985) defines microteaching as: "A method of practice teaching in which videotape of a small segment of students classroom teaching is made and later evaluated."

As noted, the Stanford group was heterogeneous, and McDonald (1973), the second principal developer of microteaching, subscribed to a theoretical point of view that "teacher

education programs should be conceptualized as behavior modification systems, designed to modify complex behavioral repertoires that are adaptable to a variety of learning problems." He viewed microteaching as an excellent example of behavior modification technique. For McDonald, microteaching was devised as a procedure for facilitating behavioral control. Further, it was used as a way of creating a more effective experimental paradigm which for the first time made it possible to use sophisticated experimental designs in learning studies. The purpose of these teaching studies was to assess the relative effectiveness of modeling and reinforcement variables in facilitating the acquisition of teaching behavior. These were some of McDonald's hopes and aspirations. Looking back, however, a decade later, he stated that:

> Microteaching remains an unstudied technique. The literature that purports to be research on it is deplorable...much of what has been written about microteaching is promotional and even misleading...more disappointing is the fact that the original conception and rationale for microteaching has been lost sight of—a point significant in the context of a discussion of behavior modification in teacher education. (McDonald, 1973)

Even after more than two decades of microteaching, Allen still saw McDonald's emphasis as misleading (Allen, 1980). He agreed, however, that there was still a need for a vigorous research program to substantiate the many claims made on its behalf. He adds, however, that microteaching has been pretty well accepted as having face validity, "Its high level of acceptance both in the United States and abroad has been based not so much on research evidence as upon the teaching candidates, and the school personnel involved in its use. It is a harsh reality that this affective evidence is more important than many research findings."

McDonald's extreme behavioristic approach to the theoretical conceptualization of microteaching didn't appeal to the educational community. The eclectic-pragmatic model proposed by Allen, which had in it some behavioristic component but was not described as such, won greater popularity. But the fact that the whole idea was very loose theoretically enabled researchers, developers, and practitioners around the world in teacher education and other related fields to adopt the basic model and modify it to their ideologies, concepts, needs and constraints.

A good example of the above description is the case of the different approaches to the use of feedback from multiple sources and in particular video feedback, as a component in the

microteaching laboratory. In the traditional models of microteaching the feedback from various sources was just another component in the process. The video was viewed as a visual aid, and very little attention was given, by most researchers, developers, and practitioners, to the psychological phenomena involved in the process of giving and receiving feedback.

On the other hand, as early as 1966, Perlberg in his studies, on the application of microteaching to teacher-education, faculty development in higher education, and to training in different other settings, has strongly emphasized the role of feedback from multiple sources and in particular the role the video feedback, which was described as a process of video self confrontation (Perlberg, 1969a, 1969b, 1970, 1972, 1976a, 1976b, 1978, 1981, 1983a, 1983b, 1983c, 1983d, 1984; Perlberg and O. Bryant, 1970, Perlberg, et al., 1972; Perlberg, 1974; Perlberg and Grohn, 1984a, 1984b; Perlberg and Auganes, 1985).

Perlberg considered the feedback process and in particular the video feedback as the heart of the microteaching experience. The feedback and in particular the video feedback triggered the dissonances phenomenon which is a discovery of a gap between an ideal image and the real image a person has of himself, or the discovery of incongruity between intentions and real behavior. This discovery initiates an arousal process which motivates the person to narrow this gap. According to the image a person has of himself, or the discovery of incongruity between intentions and real behavior. This discovery initiates an arousal process which motivates the person to narrow this gap. According to these approaches, the feedback and, in particular, the video feedback was the main facilitator and accelerator of change and growth in the cognitive, attitudinal and behavioral domains.

In developing the theoretical conceptualization of the video self confrontation approach (V.S.C.) in teacher education, faculty development and different other training settings, Perlberg relied heavily on Roger's pioneering work (1942) on "the use of electrically-recorded interviews in improving psychotherapeutic technique." Nielson (1964) and his Studies in *Self Confrontation* which were conducted before the development of video technology and the microteaching concept. Another important source of research was: *Studies in Self Cognition: Techniques of Video Self*

Observation in the Behavioral Sciences. A series of reports on pioneering research conducted in the early days of video technology, before the advent of portable video recorders (Gerstma & Mackie, 1969) and Kagan studies on the use of I.P.R. – Interpersonal Process Recall and video recordings in counselor training and different other settings, which originated in the mid-sixties.

The use of video as a source of feedback was used in many settings and a large number of basic text and review of the literature in the area were published (Berger, 1971, 1978; Damet, 1982; Fryrear, and Fleshman, 1981; Hung and Rosenthal, 1978, 1981; Johnson, 1981; similar emphasis was given to the video self confrontation processes, with some variations of emphasis, by Fuller and Manning (1973), Bierschenk (1974), Finlayson (1975), MacLeod and McIntyre (1977), McIntyre (1977). It is interesting to note that most early developers of the microteaching were not even aware of the literature on confrontation techniques and video self confrontation as investigated on other settings. In the first decade of the development of microteaching, very few writers cited this type of research in their books and reports on microteaching.

Unfortunately, the approach which emphasizes the important role of U.S.C. was not accepted by most teacher educators who used microteaching techniques. Self-confrontation processes and in particular video self-confrontation are very powerful techniques. They could accelerate change processes, but they could do also a lot of harm if used improperly by unqualified personnel, or could be wasted when used mainly for "cosmetics" or in a simplistic, mechanistic way. Optimal uses of self-confrontation processes required trained facilitators and clinical supervisors while the supervisors in microteaching laboratories were in general young teaching assistants who were not qualified and in most cases were reluctant to take advantage of the powerful potential of confrontation and arousal processes. They preferred therefore a more simplistic and somewhat superficial approach to the feedback process, which was of course also easier for those who received the feedback and safer for the supervision in the laboratory.

The Extent of Microteaching Usage in Teacher Education and Other Settings

Walberg (1986) was quoted above stating "that microteaching was now largely but unjustifiably abandoned in teacher education programs." The extent to which this conclusion is based on hard data or just intuition, is an open question. Walberg does not provide any data to support this conclusion.

Other reviewers of the literature on microteaching, relying on some surveys are somewhat more optimistic than Walberg. Copeland (1982), in his review of pre-student teaching laboratory experiences in teacher education, sees microteaching as one of the main experiences in the laboratories. According to Copeland, these laboratory experiences have been mandated by the National Council for the Accreditation of Teacher Education (NCATE – Standards for Accreditation, 1979). Based on data from surveys of teacher education practices in the U.S., Copeland states that "laboratory experiences as simulation, microteaching, protocol materials and computer assistant instruction is the rule rather than the exception in America pre-service education" (p. 1008). Hargie and Maidment (1979) have made similar observations based on their surveys in the U.K. and other countries.

Even though the above stated conclusions are based on surveys, one has to be careful when evaluating their conclusions. In many surveys, the questions about the use of microteaching in a program are general and even vague. Teachers are asked whether they use microteaching or not, and very seldom is there a thorough analysis on the details of the usage and in particular on its intensity. In many cases, student teachers described their microteaching experiences as giving one microlesson to their peers in a teaching method class which may have many students, only some of whom will have a chance to microteach and receive thorough feedback from multiple sources. In this case, the microlesson of several students serves as case material for discussion in the method class rather than microteaching practice. The Technion-Israel Institute of Technology (in Haifa, Israel) program in teacher education is an example of a relatively intensive use of microteaching, or a T.L.L. Teacher education students are required to take a general methods course for two semesters, which consists of 120 credit hours in two semesters. Sixty credit hours

are devoted to theoretical input through lectures and seminar type discussions in groups of 24 students each, and there are usually three such groups. These groups are then split into three to four small groups (six to eight students each) who practice in T.L.L. for another 60 credit hours during two semesters. The facilitators are generally graduate students or experienced teachers who received a special graduate seminar in clinical supervision and are supervised themselves by the course coordinator throughout their work. They meet with the student teachers before the classes to plan their laboratory lessons and they meet after classes to complement the analysis of the microlessons in the class with additional individualized and personalized feedback. The learners in the lab are high school students who come regularly to the lab, and they are compensated for their "service" as learners in the lab, by being allowed to attend enrichment classes in the computer lab or other extracurricular activities. The student teachers receive feedback from multiple sources: their own recall, the learners', written and oral feedback from peers, the video and the clinical supervisors. Each one of the students teaches at least four to six microlessons during the two semesters. In addition to this intensive laboratory experience, in the general methods course, instructors in the special disciplinary method courses are also using microteaching techniques.

The Technion program is described in great detail to illustrate the point that teacher educators, responding to surveys, may state that they are using microteaching in their programs without reference to the intensity of the program. And the intensity of the program has far-reaching implications as far as the curriculum, in the microteaching laboratory and to the financial resources for highly-skilled personnel who work in small groups; adequate laboratories equipped with video equipment, and bringing children as learners in the laboratory.

From personal communication with teacher educators in different countries, it is evident that the intensive model described above is used very rarely. In most cases, a variety of less intensive models are used. Houston and Newman (1982), in an analysis of teacher education programs, state that in the early 1970s microteaching was at its peak and an estimated 77 percent of programs included a microteaching component. By 1975, however, its use was reported

by fewer than 40 percent of teacher education institutions. They explain this phenomenon by stating that material resources such as video and human resources such as: children as learners and qualified supervisors proved very costly. As a result, many teacher education programs modified the original models, peers served as learners instead of children, the second re-teach lesson was frequently dropped, and sometimes audiotape was used instead of videotape. Unfortunately, in many cases, because of various constraints, the way microteaching is used is just a remnant of the original idea.

Microteaching Effectiveness

Allen and Ryan (1969) were quoted earlier as stating that the microteaching needed an intensive research program to substantiate the many claims made on its behalf since its inception in the early sixties. A decade later, in reviewing the state of art of microteaching, Allen (1980) admitted that there was still a need for a vigorous research program on the effectiveness of microteaching. Dunkin (1975), who reviewed the research literature on the "technical skills of teaching" component in microteaching, concluded:

> First, there seems to be consensus among those who have reviewed research related to the identification of teaching skills that we have very little empirical knowledge about their nature and their effects as yet. There is some disagreement as to whether the research enterprise is worth pursuing further, but most of the reviewers are optimistic, given more research that is either more rigorously designed in traditional ways, or that throws off the bounds of the traditional assumptions and seeks designs and methodologies that better suit the nature of the data. In any case, at this point in time there is far from adequate empirical basis for using the technical skills approach in teacher education. (p. 137)

In a more recent review of the literature on the subject, Dunkin (1987) states that "it is probably still the case that attempts to specify technical skills of teaching rely more on impressionistic evidence from professional experience than upon systematically obtained evidence from empirical research" (p. 705).

Copeland sounds somewhat more optimistic in his review of the literature on microteaching. He concludes that:

> There appears to be a considerable research base supporting the inclusion of microteaching as a pre-student teaching laboratory experience in teacher education. Participation in microteaching appears to assure initial acquisition of selected

technical skills of teaching and to be associated with shifts in participants' attitudes. Further, skills acquired by doing microteaching may be used in student teaching classrooms subsequent to training if the nature of those classrooms supports such use.

Microteaching is, however, a relatively expensive training technique, because one-on-one supervision is normally required to provide adequate feedback. Access to different pupils for each teach-reteach lesson is difficult. As with all training techniques, the benefits and costs must be weighed by the user. (p. 1011)

The most recent review of research on microteaching effectiveness was conducted by MacLeod (1987) who concluded that:

Despite some 20 years of research effort, the only definitive conclusion which can be drawn about the effectiveness of microteaching is that participants are seen to enjoy and value the experience. It seems clear that microteaching enjoyed almost faddish popularity in the late 1960s and early 1970s and that this produced a plethora of studies on isolated aspects of microteaching from which only few useful generalizations may be formed. It is also clear that there has been no recent sustained research program which has attempted to draw both upon these generalizations and the lessons learned in the execution of that research.

Simple verdicts on the effects of microteaching on subsequent teaching behavior are unlikely to be reached. Microteaching, like any other teaching method, is complex, in terms of the variety of components it uses, the aims it attempts to achieve, and the theoretical models which underlie these aims. Assessment of success is further complicated by the difficulty of specifying criteria for achievement of some of the less tangible aims and by the sheer cost and practical difficulties involved in mounting meaningful long-term research in this area. Nevertheless, microteaching is itself a costly endeavor and there is a clear need for research-based study of its effects so as to allow judgments as to its effectiveness. It is apparent that much experimental research on microteaching has been sterile, providing only a situation-specific evaluation of a particular and local set of training components. This has prevented any meaningful accumulation of research results into a coherent pattern. The remedy for this problem lies in ensuring that research on microteaching and generalizable theory. Only then will coherent and generalizable results emerge. (p. 728)

Each of the above above quoted reviewers has his own style in presenting his conclusions, but all agree that there is still a great need for a vigorous research program to substantiate the claims made on behalf of microteaching.

Other Criticisms of Microteaching

The inclusion of microteaching laboratories in traditional teacher education programs requires additional financial and human resources which many programs could not sustain. The budgetary difficulties the world over, on one hand, and the lack of solid research evidence on cost

effectiveness, on the other hand, contributed to the abandonment of the concept by many teacher educators.

But a more serious obstacle to the inclusion of microteaching in teacher educators programs was conceptual. The main objection and criticism of many teacher education programs were directed at the "technical skills" approach developed at Stanford. Even though Allen, one of its main developers, objected to McDonald's perception of microteaching as behavior modification (see discussion above p. 7) the technical skills model is perceived by many as a behavioristic model to which many educators objected. Dunkin (1987) summarized the attitudes of many educators stating that:

> Possibly the main criticism has been that the technical skills approach to teaching leads to the mechanization of the teaching-learning process such that teachers are encouraged to follow over-simplified prescriptions or recipes, that ignore variations in contexts and individual differences in both teachers and students. For example, it has been argued that some approaches to the training of student teachers assume that such skills as higher level questioning should be implemented as much as possible so that the elimination of demands for factual and descriptive information in the classroom would eventuate, to the detriment of the students. Such assumptions about the absolute validity of some teaching skills are often not recognized by supporters and users of the approach. Given the inevitable constraints upon such large scale implementation of any one teaching behavior under normal classroom conditions, such a risk is probably negligible.
>
> Another related criticism is that the technical skills of teaching approaches emphasize the behavioral aspects of teaching to the detriment of the intellectual and creative aspects. It has been said that training teachers in the performance of particular categories of teaching behavior neglects the conceptual theoretical, and decision-making roles of the teacher and ignores the imaginative domain which so often is thought to distinguish the gifted teacher from the mediocre. (p. 705)

The arguments against the technical skill model as described above are only one side of the picture and Dunkin also presents other points of view of defenders of the approach who argue that:

> Technical skills of teaching are best incorporated into teacher education programs not merely as recipes for action but as parts of behavioral repertoires which heighten teachers' capacities to select and implement teaching strategies they might choose on the basis of their theoretical training and creative dispositions. If teachers judge wisely that a certain category of teaching behavior is desirable to achieve particular objectives for particular students under particular conditions then it is argued teachers need to have at their disposal those teaching skills. (p. 706)

The Rise and Decline of Microteaching Laboratories

Walberg (1986) was quoted earlier as stating that microteaching was "unjustifiably abandoned in teacher education programs" (p. 220). From surveys of the literature cited above, it would seem that this description is not accurate. Microteaching had a meteoric rise in its first decade and captured the imagination of researchers and practitioners in teacher education the world over. It lost it's appeal to educational researchers, developers, and granting organizations, as of the mid-seventies, and other research priorities took over. The decline in interest among researchers and developers, who are generally the change agents who disseminate the innovations, coupled with other objective factors, such as dwindling financial and human resources, has also caused a decline in the use of microteaching by practitioners in teacher education programs, but it is certainly not yet abandoned.

It should be pointed out that the loss of interest and lack of persistence in this area, which is still viewed by many as regrettable, is not always related to the basic theoretical conceptualization of microteaching and laboratories experiences. It is to a great extent a manifestation of a ritual among educational innovators, researchers, and developers, who constantly search for innovations and new ideas, which in many cases, appear to be fads. We live in a consumer's society which hails the obsolescent. This attitude is true also for educational ideas, concepts, and innovations. If it's not "new," it could not be described as an "innovation" which is essential, not only to sustain the consumer's interest but also to receive grants and other resources. The obsession with "newness" results many times in the dropping of ideas worth pursuing. This is especially true for the American educational researcher, and it has a great impact on educational researchers the world over. It is interesting to note that even the originators of the microteaching concept in the United States viewed themselves as "idea people," and they were involved in the initial stages of the development and dissemination of the idea. They were also involved in the first phase of the research, conducted mainly by a young and enthusiastic group of graduate students who began their first steps as educational researchers focusing on microteaching. Very quickly this whole

generation of researchers abandoned the subject, assuming that other researchers would continue with research in that area, but relatively few followed.

Another factor which may have contributed to the decline of microteaching may be the choice of the term. Even though the basic concept was a pre-student-teaching laboratory setting, the originators preferred the catchy term "microteaching." Truly enough, the term microteaching describes some of the basic elements of the laboratory and was seen as part of the scientific trend towards analytical research on the micro level. But even Gage (1963, 1968) who advocated the analytical, micro approach to the study of teaching and teacher education, saw in the micro approach just the first step in understanding a very complex phenomenon as the teaching learning interaction.

As in research, also in teacher education, the micro element was supposed to be only the first phrase in the training process. But the developers of the idea, and later the practitioners, were locked in the "micro" concept, leaving the training in macrolessons to the student teaching phase. The micro concept which was and still is an important procedure in scientific and technological research, became somewhat a derogatory term to many educators. Educators objected to the oversimplification of teaching-learning interactions and the teacher education processes, which are basically very complex processes. Unfortunately, those who have tried to reduce the complexities of the phenomena to understand its components and use it as a training method in the initial stages have neglected to bring it back to its proper proportions and then alienated many educators.

A particular group of teacher educators who were especially antagonistic towards the whole idea from its inception were those who advocated humanistic approaches to education and teacher education, and who viewed microteaching as a behavioristic approach. The fact that microteaching didn't develop and broaden its scope beyond the simplistic technical skills model added greatly to this antagonism and rejection. It is interesting to note that many "humanistic" teacher educators who rejected microteaching because of its behavioristic components endorse fully the student teaching or practice teaching components in teacher education programs which are

basically "apprenticeship" systems. The apprenticeship model incorporates concepts of modeling, learning by observation and imitation, as well as reinforcements, all of which are behavioristic concepts.

The discussion above focused on the development of microteaching from the inception of the idea to its present status. The following discussion focuses on future directions in developing the basic original feature of microteaching, which is a teaching learning laboratory, as a setting for research development and training in teaching and teacher education.

From Microteaching to Teaching Learning Laboratories – T.L.L.

The "crises" in education and schooling and the dissatisfaction with teaching and teacher education programs which led to the development of microteaching are still with us. Thus, the need for reforms in teacher education is as "urgent" as it was a quarter a century ago; and new reforms are proposed. Berliner (1985) identifies three trends in the emerging reform movements in teacher education. According to reform trend A, teacher education programs should put greater emphasis on the acquisition of subject matter knowledge, assuming "that teachers don't have enough content knowledge to teach efficiently." Reform trend B advocates increased reliance on student teaching and field based clinical experience, which is basically a reaffirmation of the apprenticeship concept in teacher education. Reform trend C represents those who believe "that pedogogical courses are wasteful of the student's time because of their irrelevant and common sensical content" (p. 1) and therefore there is a need to decrease the time spent to pedogogical courses and in particular method courses.

Berliner expresses his concerns with all three reform trends described above and supports his concerns with ample research evidence which discredits these "new" or other older reform trends. Instead, Berliner suggests the concept of pedagogical laboratories as optimal settings for the training of teachers, and for the study of teaching and teacher education.

> We must modify teacher preparation programs by transforming the curriculum laboratories in which we train teachers into real laboratories. Nationally, most such curriculum laboratories where one can learn the content in an area, the time allocations that might be necessary to teach particular parts of the curriculum, and the tests for specific curriculum materials, are really just rooms where one can go

through materials and catalogs of different publishers. They are not laboratories in the sense of having students to whom one can teach concepts, where expert teachers can provide critiques of the lessons, and where the peers of the novice teacher and the children themselves can join in the analysis of the teaching activities that have just occurred. We must provide our novice teachers with environments in which to experiment with producing cognitive and affective change in children. We need real laboratories in education, just as do chemists, biologists, and physicists who also must learn to experiment while they are in training.

Second, we need video equipment and the money to pay experts to analyze teacher performance, just as do the track and football coaches. The average teacher in training in the United States gets very little analysis of his or her teaching performance with video tape. Television is useful, too, for learning the educational significance of our most treasured concepts. These include concepts such as intelligence, where the television can show the responses of extremely bright, average, and very dull children to the same stimulus. It includes concepts such as sex bias, and allows for the viewing of films that show examples of sex bias in the classroom, by people who thought they were acting in an unbiased manner. The concepts in Bloom's taxonomy can be illustrated with television tapes of children struggling with questions at different levels of the taxonomy as they provide answers to different kinds of questions. All of the many concepts we have to guide us in education need the allocation of resources such as equipment, time, and personnel to accommodate children's needs. Inadequate training in decision making by a military staff, or a teaching staff, could result in disaster for their nation. One is just more immediate than the other. (p. 6–7)

Even though the term or concept of "microteaching" or "microteaching laboratory" was not mentioned in Berliner's description of the "pedagogical laboratory," one could identify many elements in the rational, purposes, procedures, and the description of the potential of the pedagogical laboratory, which resemble very much those embodied in the microteaching concept. As stated above, the term "microteaching" and the technical, somewhat behavioristic orientation it represents, became anathema to many educators. While many of its basic principles and components are valued and worth incorporating, the shell or the packaging represented in the term microteaching could be abandoned. This is especially true if one wants to disseminate an idea and be careful that it will not be rejected because of semantics.

From Berliner's further discussion on the pedagogical laboratory, one could realize that he is disappointed with the way it developed. As one of its originators, he would have liked to see it developed into a broad concept. Like many others, in his conceptualization of the pedagogical laboratory, he relies on Dewey's basic ideas of the laboratory in teacher education (Dewey 1904, 1937, 1938). Berliner states that:

> Pedagogy must change to become a laboratory-based field of study. Dewey reminds us that laboratory training has other distinct advantages besides training the behaviors we want to be in a professional person's repertoire. It is the ideal setting for learning to judge one's own work. By viewing video tape teaching protocols, a person has the chance to analyze the work of other teachers. Furthermore, a person may be creative and divergent without fear of failure or of hurting children in the process. (p. 6–7)

Extensive practice opportunities in the use of the newly created behavior management techniques or cooperative learning techniques can certainly be provided in laboratory settings. But even more important are the new norms about the nature of teaching that could be developed if teacher education became a laboratory-based field. The analytic rather than the practical would be the orientation of teachers who were prepared in this way. Teacher education and the status of teachers in society will not improve markedly if our reform efforts are directed solely at increasing subject matter knowledge and student teaching experiences. With valid content to be practiced and powerful new concepts available to analyze teaching, a new pedagogical curriculum can be developed that has much efficacy (p. 7).

Dewey is credited with the introduction of the laboratory concept in education as part of the "scientific movement in education" (Turney, 1986, 1987). Dewey's ideas on pedagogical laboratories were incorporated in the laboratory school he founded at the University of Chicago in 1896. Mayhew and Edwards (1939) describe its roles as follows:

> Conducted under the management and supervision of the University's Department of Philosophy, Psychology and Education, it bore the same relation to the work of the department that a laboratory bears to biology, physics or chemistry. Like in any such laboratory, it had two main purposes: (a) to exhibit, test, verify, and criticize theoretical statements and principles; and (b) to add the sum of facts and principles in its special line. (p. 3)

Although Dewey didn't see the role of the laboratory school as training teachers, other laboratory schools did. According to Russell (1902), the Horace Mann School at Teachers' College Columbia University provided opportunity for prospective teachers "to observe good teaching under favorable conditions in order to fix ideas and to establish a practical standard of merit" (p. 3). Thus a growing number of these laboratory schools, especially in the U.S., subscribed to the dual role of the laboratory: on one hand, setting for research and experimentation in education as Dewey envisioned and, on the other hand, the classical functions of demonstration,

practice and experimentation as practiced in the laboratory schools in Europe as early as the 17th century and later on in the United States (Turney, 1987).

In a review of the state of art of laboratory experiences in teacher education Copeland (1982) states that most teacher educators agree that "teacher trainees should be provided with a set of experiences that fall somewhere between "learning about" teaching and "doing it in the field." Such practices help in bridging the gap between principles and practices.

> These experiences should actively involve trainees in laboratory and/or clinical exercises intended to broaden their practical understanding of teaching and learning in schools, to facilitate acquisition of selected teaching skills appropriate for use in classrooms, to increase attitudes of self-confidence in themselves and understanding of youngsters, and to encourage transfer of knowledge of teaching and learning from university or college courses to field settings. (p. 1008)

Copeland sees in microteaching, protocol materials, and simulations, including those assisted by computer, as the main experiences dominating the field of laboratory experiences in teacher education.

Ball (1987) in a discussion of "laboratory" and "apprenticeship," and how they function as metaphors for practical experience in teacher education discusses, in great depth, Dewey's use of these metaphors. Ball states that many advocates of laboratory settings or experiences in teacher education rely on Dewey's essay on "The Relation of Theory to Practice and Education" (1904). Without taking into account that Dewey's concept of the laboratory was a setting for scientific inquiry, exploration, reflection, experimentation, and the development and accumulation of theoretical knowledge about education and teaching. According to Dewey, the teacher should acquire technical skills of teaching and master the craft of teaching through apprenticeship in the field.

In comparing the laboratory and apprenticeship as modes of pursuing knowledge, Ball sees three major epistomological differences:

> First, there is a difference in the nature and purpose of the knowledge sought. In the laboratory, the emphasis is on the search for truth or understanding, on the creation of new propositional knowledge. Although this knowledge may have practical application, it need not; it is in any case intrinsically valuable. In contrast, acquiring procedural knowledge is the goal of apprenticeship. Knowledge is acquired not for its own sake but as a means to an occupation.

> Second, the laboratory approach and apprenticeship differ markedly in their temporal orientation. The assumption that better ideas will keep replacing existing ones underlies modern science; there is an implicit faith in progress. In a laboratory, the method of learning is also as important as what is learned. The apprenticeship focuses on equipping people for the present. It does not prepare them for what to do if things change, or if new and different situations present themselves. Progress toward some ideal is not the goal; instead, maintenance of standards and the passing on of customary ways of doing things are central. This gives apprenticeship a more conservative orientation.
>
> Finally, since both a laboratory and an apprenticeship are settings for firsthand learning, both imply that practice is a source of knowledge. The warrants for knowledge differ, however. In the laboratory, "experimental" thinking provides the basis for justification; that is, careful reflection based on theoretical principles, while the knowledge gained in apprenticeship is "empirically" warranted—merely seeing "what works." (p. 8)

Furthermore, relying on Buchman (1985), Ball states that "the concept of a laboratory brings with it all the common assumptions about science, and the superior status which science and scientific approaches often hold."

On the other hand, Ball states that:

> Apprenticeship evokes the lower-status image of manual labor and of vocational-technical training. It also represents learning by imitation; an approach that implies that the work is routine and predictable, that it can be copied from a master. Since the novice is engaged in the actual tasks of the work, the idea of apprenticeship does suggest a practical, realistic focus, although this also underscores its inherent utilitarian orientation. (p. 9)

Ball argues with the continued use of these metaphors and states that:

> they shape our thinking in unexamined and questionable ways. Dewey chose the terms laboratory and apprenticeship to highlight an important distinction in orientation to practice, but they may have outlived their usefulness. It may be more important to recall Dewey's essential point rather than to retain the metaphors. Learning to teach is more than acquiring technical proficiency and should not be a matter of merely imitating someone else's ways of doing things. What matters, instead, is that teachers, whether beginning or experienced, learn to see teaching as inquiry and are equipped to be analytic and learn from their own practice. By discarding Dewey's metaphors, we can be free to think more creatively about the ways that teachers can be helped to take an inquiring stance as they learn to teach. Free of the baggage of science, art, and craft, we should instead, in the spirit of Dewey, inquire about what can be learned, where, when, and with whose help, bearing in mind the importance of preparing skillful beginning teachers who can learn both from others as well as from their own practice.

Concluding Remarks

The microteaching laboratory concept in teacher education was conceived and developed a quarter of a century ago as a response to criticism, dissatisfaction, and frustration with the state of education in general and teacher education in particular. The public at large as well as educators and teacher educators shared these feelings: Berliner (1985), following Cremin's (1953) analysis of the four major periods in the field of teacher education, suggests to end the fourth period of Cremin's analysis in 1963, when the "first Handbook of Research on Teaching appeared, and research on teaching stopped being the interest of a few researchers." Berliner states that the "research base in the study of teaching is better and broader than it has been... and the most obvious use of this research on teaching is as the content of programs of teacher education" ..."it is in this period of maturity in a research-oriented field where laboratories can be established" (p. 7). Even though Berliner suggests to view these laboratories as an entirely new beginning, it would be a mistake to ignore the experience gained in this field since microteaching was conceived and developed, just because it evokes negative reactions among some educational reformers. Dunkin (1987) in his conclusion of a critical review of the technical skills approach in microteaching states:

> On the basis of the latter argument, the definition of technical skills of teaching has been broadened in more recent years to include diagnostic, analytic, and hypothesizing skills rather than the more strictly observable behavioral skills. Teachers, it has been argued, need to be trained in criteria for assessing student needs, in monitoring their own teaching behavior, in analyzing the requirements of subject matter and educational objectives, and in recognizing alternative types of teaching strategies to achieve them. The emphasis has tended to move more towards teachers' powers of conceptualizing, hypothesizing, and synthesizing than to the acquisition and performance of discrete teaching behaviors thought independently to be technical skills of teaching.
>
> The concept of technical skills of teaching has encouraged teachers and teacher educators to adopt an analytic approach to teaching effectiveness. In spite of the dangers of dehumanization and prescriptiveness associated with the approach, it has operated to encourage extensions of behaviors, repertoires and in its more recent forms, has encouraged conceptual sophistication and professional awareness on the part of teachers. (p. 706)

One of the major lessons we should learn from the story of microteaching is the power of metaphors in daily life (Lakoff, G. & Johnson, M., 1980). As a metaphor, microteaching had such

a great appeal in its initial stages that it quickly stagnated and didn't develop into a broad concept of a teaching-learning laboratory as some of its original developers envisioned. On the other hand, the concept of the laboratory brings with it the superior status which science and scientific approaches often hold (Buchman 1985; Ball 1987). Thus, promoting the concept of a teaching-learning laboratory has a better chance of being accepted and supported by the academic community and the public at large.

My own experience with promoting the concept of microteaching could illustrate the importance of using the laboratory metaphor. I became acquainted with microteaching at Stanford in 1965. Coming from the Technion-Israel Institute of Technology which specialized in engineering science and medical education, I realized the importance of emphasizing the general concept of a laboratory rather than the micro element which was only one element among other elements. My own early research and development with microteaching started at the University of Illinois (1966–68), in vocational/technical teacher education, and in faculty development in the engineering school, and later on in Israel and other countries where I consulted. My experiences were mainly in science and technical teacher education in faculty development in engineering and medical schools, and in industrial and business settings. In all of these experiences, students, trainees, faculty and university administrators were much more receptive to the laboratory concept than to the new term "microteaching." The term "microteaching" raised in many instances faculty's eyebrows, who saw in it a "gimmick" rather than a concept. This was true even for faculty who were involved in micro research in electronics, biology, and other disciplines. They could not conceive of the application of the micro concept to a teaching laboratory. Interestingly enough, once in the laboratory, they didn't mind practicing micro lessons to micro classes, focusing on particular skills, etc.

When approaching university administrators for resources to establish the laboratories, equipment, staffing with personnel for small group work, funds for children as learners, the argument that teacher education deserves a laboratory setting as much as other disciplines on the campus was very helpful. The fact that the Technion's teaching-learning laboratory is still fully

functioning in spite of scarcity of resources all over the university testifies that the university recognizes the importance of the laboratory as it recognizes the importance of laboratories in other disciplines.

Another aspect in our use of the laboratory metaphor refers to the teaching-learning concept. By using the term "microteaching," the focus was on teaching and technical skills of teaching rather than on the teaching-learning process. The use of the term teaching-learning laboratory connotes that the laboratory should be a setting for the study, experimentation, and training in teaching and learning. The focus is on every element which facilitates learning. The laboratory should be a site for developing a better understanding of how student teachers as well as children of all ages learn and what facilitates their learning best. It is the teacher, the group, the environment, the resources? Based on recent research in cognitive psychology and student learning, the training in the laboratory should focus also on new approaches to help learners to improve their study skills and learning strategies.

What are the main impediments and obstacles in implementing the concept of T.L.L.? In the first place, it is our own conviction about the potential and effectiveness of the T.L.L. It is often stated that one of the main reasons for the declines in the use of microteaching laboratories is the lack of financial resources and until we have empirical research data on the effectiveness of such laboratories it will be difficult to obtain resources for this purpose.

It seems that educators exaggerate and set for themselves criteria and standards which can not be met. As stated above, laboratories exist in research and training in many other walks of life, and there is no empirical research data to substantiate the need for their existence and optimal uses in laboratories. Wherever there are laboratories, in science, technology, medicine, and other fields, the rationale for their existence is professional judgment. White and Tisher (1986) state that laboratories have long been accepted as an integral and vital part of science teaching, and it is "almost a matter of dogma." They agree that its purposes should be considered so that among others, investments in them could be "defended against attack from economy-seeking administrators" (p. 880). This was stated in regard to science laboratories in elementary

and secondary education, which no one doubts the importance of their existence. It is even more true in higher education and, in particular, in professional schools. The laboratory component in professional education, wherever it exists, is the costliest component in the program, and the public and legislators allocate resources for it even without hard empirical, comparative, data to support its usefulness. There is no doubt that there is a need for such research evidence in all fields, but in its absence, we in education should also rely on our professional judgment, as others do.

Even if resources would be allocated, laboratory settings established and equipped with the most sophisticated equipment such as video technology, computers for simulations, conferencing and other purposes, it does not assure their effective and optimal functioning unless they are staffed with highly qualified personnel, experts in laboratory experiential education.

Past experiences with microteaching has shown that the interaction with students in the laboratory was left mainly to teaching assistants who were not trained as clinical supervisors and facilitators who are able to involve students in deep analytical and reflective processes. Most of them didn't have the training in using feedback from multiple sources and in particular video feedback as a source of self confrontation. The activities in most laboratories were limited to simplistic and somewhat mechanistic training in technical skills of teaching.

Unfortunately, at present, teacher education and teacher educators don't hold high prestige even among their own peers in schools of education. Clinical work with prospective teachers is not rewarded adequately in academia, and faculty in schools of education prefer to work with graduate students and pursue research interests rather than be involved with student teachers. This is a great impediment to the transformation of the existing laboratories and those established in the future, into a major component in the education of teachers. We need a strong conviction in the potential of T.L.L.'s, the assertiveness to obtain financial and human resources for their functioning, and a commitment of all of us to share the responsibility of turning the laboratories into a major component of teacher education programs.

In October 1987, thirty-seven university and college presidents led by Stanford University President Donald Kennedy, issued an open letter to 3,300 leaders in higher education, asking them to "act together as persistent and passionate advocates for reform." The letter suggests that university and college presidents speak out on the importance of teaching, give higher priorities to their schools of education and provide an example by improving teaching quality on their campuses. The letter states that to ensure high quality programs in schools of education the "status quo" (underlined in letter) is unacceptable. The university presidents recognize a "national emergency" in education and calls for reforms in the general quality of teaching on their own campuses and to the preparation of teachers in schools of education.

The president of Harvard, Derek Bok, devotes "The President's Report – 1985–1986" to the members of the Board of Overseers (April 1987), to education in general and to Harvard's School of Education in particular.

In his discussion on "Prospects for Professional Training" Bok refers not only to teachers but various other groups of professional educators. He states that leading faculties of education "have an obligation to set an example and use their prestige to attract abler students into the profession. More important still, such a program can be a laboratory in which to develop more effective ways of preparing teachers" (p. 20). When discussing particular aspects of teacher education, Bok states that "instead of making do with loosely supervised practice teaching programs, one could take more use of supplementary techniques, such as videotaping and microteaching that are already widely employed elsewhere in the University." It is interesting to note that Bok proposes to Harvard's School of Education to put greater emphasis on the use of "videotaping and microteaching," relying on its wide use in other professional faculties in the university. Bok points out that "despite Harvard's high reputation among schools of education, the standards achieved in its own curriculum and teaching have not stood out within the University" (p. 34).

Even though these remarks are addressed to Harvard's School of Education, many other prestigious and less prestigious schools of education, deserve similar criticism. Bok refers also to the general status of school of education stating that:

> In the past, commentators have ascribed the marginal status of education schools to inadequate funding, or a lack of respect from the rest of the university, or the low estate of the teaching profession in our society. In my opinion, an equally important reason has been the failure of education faculties to practice what they preach. Rather than imitate their colleagues in arts and sciences, they should strive to exemplify the highest standards of instruction and to come forth with challenging new ideas about better methods of instruction, better ways of assessing student progress, and better ways of helping those who find it difficult to learn. It is by serving as an example of good practice and a catalyst for educational reform that schools of education are most likely to attract greater respect and attention within the university as a whole. (p. 36–37)

Kennedy (1988), Director of the National Center for Research on Teacher Education, discusses the problem of training for expertise in general and as it applies to teacher education in particular. In her discussion, of the transition phase from theoretical courses at the university to practice in the field, she states that: "Most programs require that students participate in some form of supervised practice, or transitional experience, prior to entering independent practice." However, "both the nature and the purpose of these transition experiences are diverse."

Kennedy describes the quickest way to move from theory into practice as: "immersion—the sink-or-swim method of introduction into a profession." The students move directly from theoretical university based study to their first job and the "responsibility for assuring that they learn how to apply necessary skills or principles is left either to the student or to the first employees." (p. 37)

Kennedy questions the benefits of this fast paced method, thus, "immersion with no benefit of guidance can foster the development of bad habits as well as good, as the new practitioner engages in a desperate attempt to keep afloat." (p. 38) There are various alternatives to immersion which could be described on apprenticeship system these various systems vary mainly in the degree, and type of guidance and control which the master or mentor teacher has on the student teacher.

Kennedy states that:

Contemporary professional educators are generally opposed to apprenticeship on the grounds that the knowledge acquired this way is haphazard, incomplete, and situation-specific; that it may consist largely of procedures with no attention to the underlying principles that should guide practice; and that there is no quality assurance since each apprentice is judged by his or her own master. Problems with immersion and apprenticeships have motivated most professional education programs to devise transition experiences for students, where students are not overwhelmed or unable to make sense of their practice, and where faculty can assure that students make the right kind of sense out of their practice. I list these forms of transition in order of proximity to the university relative to practice.

First, universities can offer laboratory experiences, in which students have an opportunity to practice techniques, or to observe concepts or principles that have been described in their university courses. These experiences rarely stimulate practice very closely, nor are they intended to. Their purpose is to demonstrate the specific application of specific techniques, concepts or principles in a setting where students will not be confused by other irrelevant data. Laboratory experiences can range from dissecting animals to drafting lesson plans to calculating statistics. What makes laboratory experiences different from other forms of transition is their attention to the application of predefined techniques or principles—codified knowledge. They are most commonly criticized for their failure to attend to the complexities of real situations.

Second, universities can offer simulations, experiences which simulate the dilemmas of practice, rather than principles or concepts which may be applied to practice. Whereas laboratories involve students in tasks whose outcomes are not so clearly known in advance. Virtually every professional field has demonstrated some interest in creating such ill-defined problems or projects for its students (Bennett, 1984; Neufeld & Chong, 1985; Burgoyne, 1985; Williamson and Hudspeth, 1982; and Nadler and Seireg, 1982). A problem is a multidimensional situation which contains an unresolved question: should company "X" purchase company "Y," for instance. Students may attack the problem by analyzing cash flow, net balance sheets, impact on stock prices, impact on bond ratings, or impact on the organization and its human resources. A project is analogous to conventional term papers in that students determine their own goals and strategies. They may be required to design a building or bridge or their own choosing, for instance. Like problems, projects are multifaceted and can simulate the full complexity of practice. They have the additional advantage of making students choose their own goals.

Even though simulations introduce students to the ambiguities of practice, they still do so in a protected environment, for students must worry about only one case, client, or problem at a time, rather than a full portfolio of cases. Further, they can compare their plans and solutions with those of their peers, learning from their peers' ideas as well as their own, and they can receive guidance and feedback from faculty. Simulations are also protected from the constraints of real practice, in that the teacher can stop action midstream to discuss technique or rationale with the student, and the student can be back and try again.

Third, universities can provide clinical experiences, which differ from simulations in that students must address real situations, rather than faculty-generated problems or projects, and they may need to address multiple concurrent problems, just as practicing professionals do. But the setting in which they face these difficulties is still university-dominated, and therefore sheltered. If it is a full-service hospital, for instance, it nevertheless is a hospital, that considers teaching to be a major part of its responsibility, thus differentiating it from other hospitals. (p. 39–41)

All of these experiences proposed by Kennedy as a new model for teacher education programs precede student teaching or practice teaching or apprenticeship as it is practical today. Moreover, instead of the common student teaching, Kennedy proposes internship programs which should be conducted on a much more intensive scale than it is done today (see Kennedy for detailed proposals).

Kennedy's plea for meaningful laboratory "transitional experience" in teacher education programs, echoes Berliner's (1985) plea stated above and is congruent to the main thesis presented in this paper.

The call for reforms in education and teacher education persists (Barnes, 1987). Establishing teacher learning laboratories as settings for research, development, and teacher education could contribute greatly to the improvement of the quality in education and schooling.

BIBLIOGRAPHY

Allen, D. W., (1980). Microteaching: A personal review. *Br. Journal of Technical Education*, 6, 147–151.

Allen D. W., & Ryan, K. A. (1969). *Microteaching*. Addison-Wesley, Reading, MA.

American Heritage Dictionary, College Edition (1985). Houghton Mifflin Company: Boston.

Ball, D. L. (1987). *Laboratory and apprenticeship: How do they function as metaphors for practical experience in teacher education?* Paper presented at the annual meeting of the American Educational Research Association, Washington, DC.

Barnes, H. L. (1987). The conceptual basis for thematic teacher education programs. *Journal of Teacher Education*, 13–18.

Bennett, J. (1984). Diverse sequence of courses focuses on problem-solving. *Journalism Educator, 31*(1), 23–26.

Berger, M. M. (Ed.) (1971). *Videotape techniques in psychiatric training and treatment.* New York: Brunner/Mazel.

Berger, M. M. (Ed.) (1978). *Videotape techniques in psychiatric training and treatment (2nd ed.).* New York: Brunner/Mazel.

Berliner, D. (1985). Laboratory settings and the study of teacher education. *Journal of Teacher Education, 36*(6), 2–8.

Bestor, A. (1955). *The restoration of learning.* New York: Alfred A. Knopf.

Bierschenk, B. (1974). "Perceptual evaluative and behavioral changes through externally mediated self-confrontation." *Didakometry* 41.

Bok, D. (1987). *The President's report 1985–1986.* Harvard University: Cambridge, MA.

Buchmann, M. (1985). What is irrational about knowledge utilization? *Curriculum Inquiry*, 15, 153–168.

Burgoyne, J. (1985). Curricula and teaching methods in management education. In S. Goodlad (Ed.), *Education for the professions: Quis custodiet....?* (pp. 141–147). Guildford, England: NFER-Nelson.

Copeland, W. D. (1982). Prestudent teaching laboratory experiences. In H. E. Mitzel (Ed.), *1982 Encyclopedia of Educational Research, 5th edition.* Free Press: New York.

Cremin., L. A. (1953). The heritage of American teacher education (Part 1). *Journal of Teacher Education, 4 163–170.*

Danet, B. B. (1982). "Self-confrontation is psychotherapy reviewed," *American Journal of Psychotherapy, 2*, 245–258.

Dewey, J. (1904). The relation of theory to practice in education. In M. L. Borrowman (Ed.), *Teacher education in America: A documentary history.* New York: Teachers College Press.

Dewey, J. (1983). *Experience and education*. New York: Collier Books.

Dunkin, M. J., (1976). Towards taking some of the fun out of the technical skills approach to teacher effectiveness. *South Pacific Journal of Teacher Education, 4*(2), 131–139.

Dunkin, M. J. (1987). Technical skills of teaching, in M. J. Dunkin (Ed.), *The International Encyclopedia of Teaching and Teacher Education*. Pergamon Press, Oxford, 1987.

Finlayson, D. (1975). Self-confrontation: A broader conceptual base? *British Journal of Teacher Education, 1*, 97–103.

Flesch, R. F. (1955). *Why Johnny cannot read – and what you could do about it*. New York: Harper.

Fryrear, J. L. & Fleshman, B. (1981). *Video therapy in mental health*. Springfield, IL: Charles Thomas.

Fuller, F. F., and Manning, B. B. (1973). Self-confrontation reviewed: A conceptualization for video playback in teacher education, *Review of Educational Research, 43*, 469–578.

Gage, N. L. (1963). Paradigms for research on teaching. In N. L. Gage, (Ed.), *1963 Handbook on Research on Teaching: A Project of the American Education Research Association*. Rand McNally: Chicago, IL.

Gage, N. L. (1968). An analytical approach to research in instructional methods. *Phi Delta Kappan*, June 1968.

Gage, N. (1978). *The scientific basis of the art of teaching*. New York: Teachers College Press.

Gage, N. L., & Winne, P. H. (1975). Performance-based teacher education. In K. Ryan (Ed.), *1975 Teacher Education*. Yearbook of the National Society for the Study of Education, Part 2, NSSE, Chicago, IL.

Gerstma, R., & Mackie, J. B. (Eds.) (1969). *Studies in self cognition: Techniques of video self observation in the behavioral sciences*. Baltimore: The Williams & Wilkins Co.

Hargie, O. D. W., & Maidment, P. (1979). *Microteaching in perspective*. Ulster Polytechnic: Blackstaff Press.

Houston, W. R., & Newman, K. K. (1987). Teacher Education Program, in H. E. Mitzel (Ed.), *1982 Encyclopedia of Educational Research, 5th ed.* Free Press: New York.

Hung, J. H. F. & Rosenthal, T. L. (1978). Therapeutic videotaped playback: A critical review. *Advances in Behavior Research and Therapy*, 1, 103–135.

Hung, J. H., & Rosenthal, T. L. (1981). Therapeutic videotaped playback, in J. L. Fryrear and B. Fleshman (Eds.), *Videotherapy in Mental Health*. Springfield, IL: Charles C. Thomas.

Ivey, A. E., & Authier J. (1978). *Microcounseling: Innovations in interviewing, counseling, psychotherapy, and psychoeducation*. Springfield, IL: Charles C. Thomas.

Johnson, E. (1981). Invidious mirror? Ethical problems in the use of videorecordings, in J. L. Fryear & B. Fleshman, *Videotherapy in Mental Health*. Springfield, IL: Charles. C. Thomas.

Joyce, B. (1975). Conceptions of man and their implications for teacher education. In K. Ryan (Ed.), *1975 Teacher Education.* 74th Yearbook of the National Society for the Study of Education, Part 2, NSSE, Chicago, IL.

Kagan, N. (1978). Interpersonal process recall: Media in clinical and human interaction supervision, in M. M. Berger (Ed.), *Videotape Techniques in Psychiatric Training and Treatment.* New York: Brunner/Mazel.

Kennedy, M. M. (1988). Inexact sciences: Professional education and development of expertise. In E. Z. Rathskopf (Ed.), *Review of Research in Education (Vol. 14).* Washington, DC: American Educational Research Association.

Kennedy, D. (1987). *Open letter to university presidents.* Stanford University (reported also in Washington Post, September 19, 1987).

Koerner, J. D. (1963). *The miseducation of American teachers.* Boston: Houghton Miflin.

Lakoff, G., & Johnson, M. (1980). *Metaphors we live by.* Chicago: University of Chicago Press.

Lumsdaine, A. (1963). *Metaphors we live by.* Chicago: University of Chicago Press.

Lumsdaine, A. (1963). Instruments and media of instruction. In N. L. Gage (Ed.), *Handbook of Research on Teaching.* Chicago: Rand McNally.

Mayhew, K. C. & Edwards, A. C. (1939). *The Dewey School: The laboratory school of the University of Chicago 1896–1903.* Appleton-Century: New York.

McAleese, R. (1977). *An archtype of self-confrontation in teacher training.* Unpublished paper, University of Abderdeen.

McDonald, R. J. (1973). Behavior modification in teacher education: In C. E. Thoresen (Ed.). *1973 Behavior Modification in Education,* Part 1, NSSE, Chicago, IL.

MacLeod, G. R., & McIntyre, D. I. (1977). Towards a model for microteaching. In D. I. McIntyre, G. R. McLeod, and R. Griffiths (Eds.). *1977 Investigations of Microteaching.* London: Croom Helm.

Nielson, G. (1964). *Studies in self-confrontation.* Cleveland: Howard Allen, Inc.

Perlberg, A. (1969a). The use of portable video recorders and microteaching techniques in supervision of vocational technical student teachers, *Journal of Industrial Teacher Education, 7*(1), 38–45.

Perlberg, A. (1969b). Zur design-problematik von Lehrerausbildungssystemen, *Programmiertes Lernen und Programmierter Unterricht,* 1, 29–34, Berlin.

Perlberg, A. (1970a). Microteaching – A new procedure to improve teaching and training, *Journal of Educational Technology, 1*(1), 35–43, England.

Perlberg, A. (1970b). Microteaching: An innovative laboratory procedure (English), *Prospects in Education,* (pp. 31–39) (French) *Perspectives de l'education* (pp. 30–40), *1*(3), UNESCO, Paris (also in Spanish).

Perlberg, A. (1972a). Microteaching – A new procedure to improve teaching and training, *Hachinuch – Journal for Educational Thought*, 167–171, Israel Teachers Association, Tel-Aviv (in Hebrew).

Perlberg, A. (1972b). Microensennanza: Un innovador procedimiento de Laboratorio para mejorar la ensenanza y el entrenamiento de professors, *Revista de la Education Superior, 1*(2), Mexico.

Perlberg, A. (1972/74). *Microteaching in International Review of Education*, Special Number XVIII/1972/74, UNESCO Institute of Educational Research and Innovations Document, UNESCO Regional Office for Education in Asia, Bangkok.

Perlberg, A. (1974b). Educational technology in the professional training of science teachers, *New Trends in the Utilization of Educational Technology for Science Education*, The UNESCO Press.

Perlberg, A. (1975). *Recent approaches on microteaching and allied techniques which can be implemented easily in developing countries*. UNESCO, Paris.

Perlberg, A. (1976a). The use of laboratory systems in improving university teaching, *International Journal of Higher Education, 5*(2), 135–152, Amsterdam.

Perlberg, A. (1976b). Microteaching – present and future directions, Educational Media International.

Perlberg, A. (1978). When professors confront themselves: The use of self-confrontation (VSC) in improving teaching in higher education. In T. B. Massey (Ed.), *Proceedings of the 4th International Conference on Improving University Teaching*, Aachen.

Perlberg, A. (1981). Towards a qualitative analysis of teaching learning processes. In T. B. Massey (Ed.), *Proceedings of the 7th International Conference on Improving University Teaching*, Tsukuba, Japan.

Perlberg, A. (1983a). Video self-confrontation in higher education: A theoretical conceptualization, *Proceedings of the 9th International Conference on Improving University Teaching*, Dublin, Ireland.

Perlberg, A. (1983b). When professors confront themselves: The use of video self-confrontation VSC in improving teaching in higher education. In O. Zuber-Skerrit (Ed.), *Video in Higher Education*. London: Kogan Page Ltd.

Perlberg, A. (1983c). When professors confront themselves: Towards a theoretical conceptualization of the use of video self-confrontation in improving teaching in higher education. *Higher Education: The International Journal of Higher Education and Educational Planning, 12*, 31.

Perlberg, A., & O'Bryant, D. C. (1970). Videotaping and microteaching techniques to improve engineering instruction, *Journal of Engineering Education, 60*, 741–744.

Perlberg, A., Peri, J., Weinrib, M., Nitzan, E., & Shimron, J. (1972). Microteaching and videotaping recordings: A new approach to improving teaching. *Journal of Medical Education, 47*, 43–50.

Perlberg, A., Bar-On, E. Levin, R. Bar-Yam, M., Lewy, A. & Etrog, A. (1974). Modification of teaching behavior through the combined use of microteaching techniques with the Technion Diagnostic System, T.D.S. *Journal of Instructional Sciences, 3*, 177–200.

Perlberg, A., & Grohn, T. (1984). Videop alautten koytt opetasdaidon paranlamisessa: Teoreettisia laht kohtia (The use of video-feedback in improving of teaching skill: Theoretical consideration). *The Finnish Journal of Education Kasvatus*, 15(1), 4–10.

Perlberg, A. (1987). Video self confrontations: A theoretical conceptualization in _____ (Ed.), *Video-Ruckmeldung und Vezhaltenstraining*. West Germany.

Rogers, C. R. (1942). The use of electrically-recorded interviews in improving psychotherapeutic techniques, *American Journal of Orthopsychiatry, 12*, 229–434.

Russel, J. E. (1902). The Speyer School. *Teachers College Record, 3*, 1–5.

Turney, C. (1987). Laboratory schools. In M. J. Dunkin (Ed.), *The International Encyclopedia of Teaching and Teacher Education*. Oxford: Pergamon Press.

Walberg, H. J. (1985). Syntheses of research on teaching. In M. C. Wittrock (Ed.), *Handbook of Research on Teaching – Third Ed.* New York: MacMillan Publishing Co.

White, R. T., & Tisher, R. P. Research on national sciences. In M. C. Wittrock (Ed.), *Handbook of Research on Teaching – Third Ed.* New York: MacMillan Publishing Co.

Williamson, K. J., & Hudspeth, R. T. (1982). Teaching holistic thought through engineering design. *Engineering Education, 72*, 698–703.